

A LIST OF BIRDS FROM THE VICINITY OF GOLDEN, COLORADO.

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Plates XXXI-XXXIII.

FORE-WORD.

IN any section of the country, where an appreciable amount of ornithological field work has been done, it is more or less difficult to plan a season's work, which will not conflict with, or duplicate, that already done by others. It was only after some thought, therefore, that the section in eastern Colorado covered in this paper was decided upon, because of its accessibility, and for the results which we hoped to obtain. Here we were enabled to study the conditions found from the plains level to an altitude of 7600 feet, presenting characters of the greatest interest to the naturalist and giving considerable diversity of forms.

GENERAL ACCOUNT OF THE REGION.

The region as a whole which we covered, extended from Turkey Creek Cañon, three miles south of Morrison, to Tucker's Gulch, four miles north of Golden, and reached from the eastern extremity of the Table Mountains at Golden, to a point about seven miles west of Golden. Clear Creek runs through the northern part of the area, coming out of the foothills through a steep, precipitous cañon, and flows eastward between the two Table Mountains, where its gravelly bed occupies a flat valley. These Table Mountains (known respectively as the North and South) are huge, flat-topped buttes, with their sides covered with thickets of plum brush, etc., and their stony tops supporting level expanses of grass with a few alkaline pools, furnishing brackish water.

Bear Creek comes out of another deep cañon at the town of Morrison, and flows through a level valley, sunken perhaps fifty feet below the surrounding plains level. Turkey Creek next to

the south resembles Bear Creek, but the cañon through which it flows while deep and rugged supports more vegetation than either one of the other two.

A peculiar rock formation known as the "Hogback" of which the Table Mountain forms a part, extends approximately north and south parallel to the line of the foothills, making a valley here averaging two miles in width. Golden itself, lies right at the base of the foothills, and has an altitude of 5655 feet, while Clear Creek east of there is perhaps one hundred feet lower. The Table Mountains rise to 6550 feet on the north and 6300 feet on the south, and the foothills go up abruptly to 7600 feet, on the highest point of Lookout Mountain. Along the foothills are numerous gulches winding out of the mountains and of these, Chimney Gulch, immediately west of Golden, affords the readiest access to the higher country. In the lower portions the sides of these gulches were covered with plum brush, ninebark, mountain maple, and other shrubs, while higher up were groves of quaking aspens and pines. South of Chimney Gulch comes Dead Man's Gulch, Coon Gulch and Mount Vernon Cañon, the first two very steep and rocky, and the latter descending to the plains more gradually. Magpie Gulch opens into the north wall of Clear Creek Cañon, and is barren with hardly any trees or shrubs, while Tucker's Gulch north of here, opening on the plains directly, is equally barren and little of interest was found in these two.

This district has (subsequent to the period covered by these notes) taken on added interest through the creation of the "Denver Mountain Parks" which include practically all the territory covered in this list. By means of a special tax levy funds have been made available for the purchase of extensive acreage at various places best adapted for scenic view-points, and at the present time (1913) an extensive system of splendid roadways is being constructed, which when completed will form a network of beautiful driveways making the entire district easily accessible to automobiles and other conveyances. A remarkable "Funicular Railway" operated by electric power which rises to a vertical distance of eleven hundred feet in twenty-seven hundred feet of track from the valley back of Golden to the top of Lookout Mountain is now in operation, and is widely patronized. The city now owns over

one thousand acres of land and the entire "Mountain Park" plan as outlined by the civic expert, Mr. Frederick Law Olmsted contemplates the eventual expenditure of over two million dollars. The "Denver Mountain Parks" bid fair to develop into one of the scenic features of Western America, and it will be interesting indeed to note the effect of this vast campaign of development and improvement upon the future distribution and abundance of bird life within the park district.

DISTRIBUTION AREAS.

The plains area covering all of the low country and extending practically to the base of the foothills and on the warm slopes of the Table Mountains nearly to their summits was characterized by growths of *Helianthus*, *Opuntia*, *Atriplex*, a species of *Peritoma*, etc., while broad-leaved cottonwoods grew along the streams and even extended up some of the gulches beyond their mouths. The creek bottoms supported dense growths of wolf berry and other shrubs, forming with the cottonwoods favorable cover for retiring species. Characteristic birds of this region were *Icterus bullocki*, *Agelaius p. fortis*, *Carpodacus m. frontalis*, *Astragalinus p. psaltria*, *Ammodramus s. bimaculatus*, *Melospiza m. montana*, *Passerina amœna*, *Icteria v. longicauda*, *Dendroica a. æstiva*, *Geothlypis t. occidentalis*, and *Dumetella carolinensis*.

In the gulches, lining the bottoms and forming thickets on their steep sides were found various shrubs as *Prunus*, *Symphoricarpus*, *Crataegus*, *Opulaster* and *Acer glabrum*. The Oregon Grape (*Berberis aquifolium*) was abundant, *Amelanchier* sp. and *Heracleum lanatum* less so. The Narrow-leaved Cottonwood (*Populus angustifolia*) grew in Turkey Creek Cañon and in Chimney Gulch were dense growths of Ninebark. *Pipilo m. montanus*, *Oreospiza chlorura*, *Vermivora virginia*, and *Salpinctes obsoletus* were more common in this intermediate area with many other birds ranging in from above or below.

On the summit of Lookout Mountain (Plate XXXI) occurred growths of *Lepargyrea canadensis*, *Rubus strigosus*, *Epilobium*, *Vaccinium*, *Alnus*, *Populus tremuloides* and many others. *Cyano-*

citta s. diademata, *Penthestes g. gambeli*, *Dendragapus o. obscurus*, *Nucifraga columbiana*, *Loxia c. bendirei* and other boreal birds which need not be mentioned here were common. Birds at this altitude were not as abundant as lower down but were far more interesting to us because of their northern affinities.

MIGRATION.

The spring migration here at the edge of the foothills was on an average about a week later than it was on the plains east of Denver, showing in all probability, that the birds came into this region from the plains area. Some species, as the Juncos, which had wintered in the foothills, moved down toward the mouths of the gulches and then migrated north, so that we noticed two distinct movements here, that of spring migrants from the south advancing up the gulches, and that of winter residents coming out of the foothills and leaving for the north.

Some species that had nested higher in the mountains began coming down in August into this country so that during this month we found considerable movement among the birds, noting several species as *Sphyrapicus thyroideus*, and *Myiochanes r. richardsoni*, that had not nested here but which became common then. Others as *Selasphorus platycercus*, *Spizella p. arizonæ* and *Sialia currucoides* increased greatly in numbers at this time.

There was a general tendency among the young birds of the higher zone breeders to work down the slopes through July and August, and this movement was more marked when the true migration began in September. Bird life in the higher altitudes was at all times rather local in its distribution and some localities, which appeared favorable to the presence of birds, as Mount Vernon and Turkey Creek Cañons, supported a very small number of species and individuals.

Our first trip into this region was made March 28, 1909, on which date we discovered practically no signs of approaching spring in the mountains and the typical winter birds were the only ones seen. Following this we made weekly one day trips almost without exception until November 14, on which date the last sign of sum-

mer bird life had disappeared, and the long mountain winter had begun. During the spring, snow storms and cold wet weather tended to retard bird movements, and a heavy sleet storm occurred as late as May 23 in the mountains. The season, from what we could learn, appeared to be a week later than usual, and the late rains caused unusual growths of vegetation in the mountains. Good weather continued throughout the summer and there was no appreciable amount of cold until the middle of August. Fall migration had ceased by November 7, and practically all the regular winter birds had arrived by that time.

The total number of trips made to this section was twenty-three, which being distributed uniformly over a period of seven months gave us ample opportunity to make a good representative collection of the birds of the region, with the exception of certain species of rare or unusual occurrence, whose presence might only be detected in a period of years, not months. Therefore, this paper is not offered as a complete list of the birds of the section, but rather as a basis for comparison between the distribution of bird life on the plains and in the closely adjacent mountains. A few notes made subsequently in this region are for convenience included here.

SUMMARY.

The field work recorded in this paper was all done in a restricted area along the eastern foothills of the mountains around Golden and Morrison, both in Jefferson County, Colorado. The region covered embraces, in the main, a range of elevation between 5600 and 7600 feet giving the zonal variation in bird life usual to similar changes in altitude.

The work done was so distributed throughout the spring, summer and fall that we were enabled to gain an idea of the distribution of the bird life during these seasons, and also to gather considerable data on migrations, spring and fall, and vertical movements to and from the higher altitudes. Twenty-three collecting trips were made between March twenty-eighth and November fourteenth, so that winter conditions were encountered both at the beginning and at the end of the period.

The total number of species of birds noted was 109 and specimens were taken of practically all of these, in many instances in large series. The following records are of particular interest, and will be found discussed more fully in their proper places; *Bubo v. lagophonus*; two supposed hybrids of *Junco h. mearnsi* \times *Junco aikenii*; *Passerina cyanea*, *Catherpes m. conspersus* and *Sialia s. sialis*. As much material as possible bearing upon life histories was gathered, and this is embodied under the proper headings in the following pages.

Annotated List.

1. ***Spatula clypeata*.** SHOVELLER.—A flock of eight birds seen on the small reservoir on top of Lookout Mountain, August 17, 1913, is the only definite record of wild ducks for this district; but other species undoubtedly occur sparingly during migrations.

2. ***Recurvirostra americana*.** AMERICAN AVOCET.—One bird seen at the reservoir on Lookout Mountain, July 18, 1913, is the only record.

3. ***Actitis macularia*.** SPOTTED SANDPIPER.—An immature female taken at the reservoir on top of Lookout Mountain, July 25, at an elevation of 7500 feet. This bird is in typical immature plumage and has the down feathers still attached to the tips of the rectrices. There is reason to believe that it was raised here, as Mr. E. J. Oslar informed us that he observed a pair nesting at this reservoir during the summer of 1908. These birds were noted also occasionally along Clear Creek, below Golden, but were not common.

4. ***Oxyechus vociferus vociferus*.** KILLDEER.—Two immature females were taken August 1, near an alkali pool on South Table Mountain and during the entire month of August they were common in boggy openings along Clear Creek. On November 14, two were heard calling below Golden during a heavy snow storm.

5. ***Colinus virginianus virginianus*.** BOBWHITE.—This species (the progeny of introduced birds) is now a fairly common resident along Clear Creek. A few were seen October 3, as far west as Rockdale, almost between North and South Table Mountains.

6. ***Phasianus torquatus*.** RING-NECKED PHEASANT.—While these birds are quite plentiful on the plains (having been introduced some years ago in considerable numbers), they do not wander up into the mountains to any extent. However, a few are seen each summer in the fields on top of Lookout Mountain up to at least 7500 feet elevation. The farmers in this locality seem to think they are increasing in numbers in the higher altitudes.

7. ***Dendragapus obscurus obscurus*.** DUSKY GROUSE.—It was

rather a surprise to find this bird here so near Denver, and while they were not common, we saw frequent signs of their presence and occasionally came across the birds themselves. Their favorite food was the kinnikinnick berry which grew in abundance on Lookout Mountain, and all the grouse observed were seen there. We found feathers scattered about their dust baths in sunny places and noted their tracks in the snow leading through the forest growth. They were wilder here than they are back in the mountains, and when flushed went off with a clucking note. On September 19, we found a flock of seven in a weed-grown field and one was taken while the others, all nearly grown young, flew into some pines. The one taken on that date still retains the juvenile plumage about the head and traces of it persist along the median breast line. The band on the tail is also darker than in the adult.

8. *Zenaidura macroura marginella*. WESTERN MOURNING DOVE.—Common everywhere, from Clear Creek to the top of Lookout Mountain, the first arrival being noted April 25. The first nests were found at about 7500 feet, on May 23, when two were examined. One of these nests was built on a large flat rock on the very edge of a great precipice. The nest was built entirely of pine needles, was shaded by a dwarfed cedar and contained two eggs, one being a runt egg which measured only $.76 \times .61$ inches. Two weeks earlier we found nests on the plains. This species continued common about Golden until the third week of August when most of them disappeared. At this time they became more abundant in the vicinity of Morrison and were perhaps attracted there from the surrounding country by the grain fields which were being cut. Three taken in Turkey Creek Cañon August 29, had eaten sunflower seeds and another small black seed which we did not recognize. The larger part of the birds were gone by the middle of September, though one was noted on Clear Creek November 16.

9. *Cathartes aura septentrionalis*. TURKEY VULTURE.—Noted occasionally from April to September. One seen on Bear Creek, below Morrison, April 14, and another at an altitude of 7500 feet above Golden, on August 18. The last bird recorded was seen on Lookout Mountain, September 26.

10. *Accipiter velox*. SHARP-SHINNED HAWK.—First noted on April 14, and seen from then until the middle of May. The first bird of the fall was seen in Chimney Gulch, September 19, when one dashed into a flock of Western Chipping Sparrows near us, but failed to kill. They were fairly common for a month after that, more being seen along Clear Creek than in the foothills.

11. *Buteo borealis calurus*. WESTERN RED-TAIL.—Seen occasionally all through the spring and summer, but more common during fall migration. The last bird was noted October 2.

12. *Falco sparverius phalæna*. WESTERN SPARROW HAWK.—This was the common hawk everywhere in the creek bottoms and the foothills. The first one was noted in Chimney Gulch, April 18, and after that they

were common. The birds were very noisy through the first week in May when nesting began, but during the summer months were not so noticeable. By October the moult was over and they were in full plumage. Ten of eleven specimens taken were submitted to Mr. H. C. Oberholser who pronounced them all *phalæna*. There is some variation in measurements and the smaller specimens are much paler than eastern birds.

13. ***Asio wilsonianus*.** LONG-EARED OWL.—Occasional along Clear Creek in early spring and late fall. Found nesting on Clear Creek about four miles east of Golden, April 24 and May 15, 1901.

14. ***Otus asio maxwelliæ*.** ROCKY MOUNTAIN SCREECH OWL.—This species was fairly common along Clear Creek up to the foothills, where it is resident and breeds during April, but could be overlooked easily on account of its retiring habits. A nesting female was noted April 3, in a hole in a cottonwood. No owls were seen at all in the foothills and only once did we find an "owl pellet" on Lookout Mountain. The single specimen taken appears to be typical *maxwelliæ*.

15. ***Bubo virginianus lagophonus*.** GREAT HORNED OWL.—An adult female taken October 2, in a gulch on North Table Mountain, was the only one seen. This bird rose from some rocks on a side hill and when shot fell with a broken wing. While we were endeavoring to capture it, we noticed a strong odor of skunk and upon skinning the specimen we found the stomach to be crammed with skunk hair and bones. This bird was submitted to Mr. H. C. Oberholser who identified it as *B. v. lagophonus*, making the second record for the state for this bird.

16. ***Dryobates villosus monticola*.** ROCKY MOUNTAIN HAIRY WOODPECKER.—During the spring these birds were rare, and a female taken April 25, in the barren hills north of Clear Creek was the only one seen. On August 22 we saw a magpie in close pursuit of one on Lookout Mountain. They darted in and out among the pines and as they passed me, I dropped the woodpecker, finding that it was an adult female in worn plumage. Two were seen September 19, and after this date they were fairly common, several being seen on every trip. One taken October 2, was in full plumage. A specimen was taken on Clear Creek below Golden, November 6.

17. ***Dryobates pubescens homorus*.** BATCHELDER'S WOODPECKER.—Rather rare in the region included in this paper. One taken on Bear Creek near Morrison April 14, and another noted April 16, on Clear Creek below Golden. We made special search for this small woodpecker but found it rarely.

18. ***Sphyrapicus thyroideus*.** WILLIAMSON'S SAPSUCKER.—Tolerably common on Lookout Mountain during the first part of the fall migration, but none seen during the spring. This was one of the birds that came into this region from the higher altitudes. An immature female taken August 8, was the first one seen. This bird was still in first plumage and both adults and young were moulting until the last of September when they disappeared. They were seen only among the pines at 7500 feet, and were very shy so that we probably overlooked some of them.





1. "NEST" AND EGGS OF RED-SHAFTED FLICKER BUILT BETWEEN STUDDING OF WALL OF FRAME DWELLING. MOUNTAIN RAT'S NEST AT RIGHT.
2. YOUNG LONG-CRESTED JAY. JUST OUT OF NEST.

19. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—An adult male was taken on Lookout Mountain at 7500 feet on May 23, and on June 6 others were seen in a valley near by preparing to breed. They were not as common however as they were along the streams on the plains. A small series of Colorado birds appears to have the bill averaging a trifle more slender than average Kansas specimens, otherwise there is apparently no difference between the two.

20. **Asyndesmus lewisi.** LEWIS'S WOODPECKER.—Fairly common in the foothills. Our first record was made May 16, when an adult male was taken, and afterward they were seen all through the spring and summer, up to October 16, which is the last date on which they were noted. They usually frequented rather barren hillsides where they perched in dead pines to watch for passing insects, which they captured after the fashion of a great awkward flycatcher. Once or twice we heard them give a rattling call not unlike that of *Centurus carolinus*, in the spring, but as a rule they are silent. By the last of July their family duties were over, and the birds were then found in parties of half a dozen or more and continued in these flocks well into September, until time for migration.

21. **Colaptes cafer collaris.** RED-SHAFTED FLICKER.—This was the only common woodpecker seen. They winter commonly on the plains, and on April 11 one was seen excavating a nesting hole at 7000 feet. They nested from the plains to the top of Lookout Mountain and were common during the summer, nests with young being found June 6. A Red-shafted Flicker built its nest between the clap-board siding and the lath and plaster inside wall of one of the cottages on Lookout Mountain. Upon its becoming a nuisance the hole it had made through the clap-board was repeatedly covered with a piece of wood nailed over the opening, but in each case the parent flicker promptly bored through the obstruction. This nest was separated only by a two-by-four beam from a cosy nest which had recently been occupied by a mountain rat (Plate XXXII, fig. 1). During September and October they were found in small flocks and spent much time searching the crevices of the rocks for insects. One specimen has all but two rectrices colored as in *C. a. luteus*.

22. **Phalænoptilus nuttalli nuttalli.** POORWILL.—Two of these birds were seen May 23, and one was taken. The first one was on a steep rocky hillside, covered with brush at about 7,000 feet. The bird flushed a few feet away, flying for a short distance with an irregular wing beat and then settled into a steady flapping rather owl-like flight. When alighting it darted suddenly to the ground, usually in an open space. The second was flushed higher up, just below the top of Lookout Mountain. It flew out from under a flat rock where it had taken refuge from a heavy sleet storm. This bird disappeared among the pines and we could not find it again. Mr. E. J. Osler says that he has found them rather frequently in Coon Gulch where they probably breed occasionally. The single bird taken is typical *P. n. nuttalli*.

23. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—

This species was fairly common from the level of Golden upward. It was first noted May 16, and was fairly common during migration. A female taken July 25 showed no signs of having incubated. In the fall they were seen in small flocks migrating southward, and were last seen September 19, when a flock was noted high above the top of Lookout Mountain.

24. *Aëronautus melanoleucus*. WHITE-THROATED SWIFT.— This bird was first seen May 16, when we found twenty or more feeding along the side of Lookout Mountain. The wind was blowing a gale and the black and white forms of the swifts crossed before us with almost incredible speed. We would hear a twitter, see a flash and the birds would be far beyond gunshot in less time than it takes to tell it. We tried in vain to secure a specimen and finally gave up in disgust. A week later it was cooler and we found a small flock of them coursing low down, just back of Golden, where one was taken. They were now in pairs and were about ready to breed. They are not as noisy as *Chatura pelagica* and appear smaller on the wing than they really are. They nested somewhere in the mountains nearby as they were seen all through June and July. On August 8 we took two more from a flock on Lookout Mountain. One of these had the throat crammed as full as it would hold with flying ants. The last bird was noted September 26.

25. *Selasphorus platycercus*. BROAD-TAILED HUMMINGBIRD.— This species was rare here in the foothills although there was an abundance of flowers, and none were seen until June 6, when one was noted above Guy's Gulch. In August they became more common and were seen until the first of September. An immature female was taken August 8 on Lookout Mountain at about 7500 feet.

26. *Tyrannus verticalis*. ARKANSAS KINGBIRD.— This species was noted only a few times. On the plains further east where they were common, the first were seen May 9, but they were not observed near Golden until May 23. The last were seen August 22, when three immature birds were taken in an open field on top of Lookout Mountain. This was the only time we found them at this altitude — 7500 feet.

27. *Sayornis sayus*. SAY'S PHOEBE.— Fairly common on the plains. The first one was seen April 11, though further east they arrived at least a week earlier. On July 25 I took a young bird that had been out of the nest about a week, and several more were seen, that had undoubtedly been hatched in or close to Golden. Their call notes resembled those of the adults but were softer as is usually the case. Adults taken at the same time were in very worn plumage. An immature male was taken in a field on Lookout Mountain September 19, which was the only time they were noted at 7500 feet and was also the last record for the fall.

28. *Nuttallornis borealis*. OLIVE-SIDED FLYCATCHER.— We made only two records here for this species. An adult female was taken on May 16, at 6,000 feet in Chimney Gulch, and on August 8, another was seen on Lookout Mountain in company with some Western Wood Pewees.

29. *Myiochanes richardsoni richardsoni*. WESTERN WOOD PEWEE.

— This species was not found until the beginning of the fall migration. On August 8 we saw two, one of which was taken, and from this date until the end of the month they were fairly common, among the pines at about 7500 feet. They were found usually with flocks of Mountain Bluebirds that were feeding there. The last was seen in Turkey Creek Cañon on August 29.

30. *Empidonax wrighti*. WRIGHT'S FLYCATCHER.— A single bird was taken in Chimney Gulch at an altitude of 6,000 feet on May 16. Small flycatchers were practically absent from this region, and none of the species common in the higher mountains were found. Another *Empidonax* however was noted above Guy's Gulch on June 6, but was not identified with any degree of certainty.

31. *Otocoris alpestris leucolæma*. DESERT HORNED LARK.— On August 11 we found a scattering flock of these birds around an alkali pool on South Table Mountain. Two young birds about half grown and an adult male in worn plumage were taken. On the two Table Mountains and in their vicinity was the only country suited to these birds and they were seen nowhere else. On November 14 numbers were observed passing over in a snow storm and some of the flocks lit on the gravel bars in Clear Creek.

32. *Pica pica hudsonia*. MAGPIE.— The large size, loud notes and striking coloration of these birds made them a conspicuous part of the landscape and when they were not in sight themselves, we could usually see their bulky nests. There were full sets of eggs in many nests the second week in April, and in the higher altitudes incubation was well under way by May 1. By the middle of June the young birds were following the adults about or sitting in the trees near their nests if still unable to fly. The old birds were wise enough to keep beyond gun-range and not many were taken. They were very inquisitive and usually when we sat down to eat lunch one or two were in sight watching us. They would make a complete circle around us and as soon as we left came down to investigate our resting place. A hawk or an owl they followed with as much eagerness as crows do in the east and they were even seen in pursuit of other birds. One day when we had laid several birds in the shade beside a rock and were a few rods away among the pines a magpie came down and seizing a blue-bird made off with it. On another occasion three or four devoured a Mourning Dove. One evening in November a long straggling flock of at least fifty birds was seen flying across a valley, but usually we saw no more than half a dozen together. The thickened anterior edge of the nictitating membrane was colored a brilliant orange in adults though this could not be seen unless the corner of the eye was pushed back. This spot was more brilliant in spring than in fall and was more noticeable in the males than in the females though present in both. It served no apparent purpose and was probably merely for ornament.

33. *Cyanocitta stelleri diademata*. LONG-CRESTED JAY.— A common bird in the foothills above 7,000 feet. Rather a large series was collected from April to November showing them in all stages of plumage.

July 18, young were taken in the dull first plumage (Plate XXXII, fig. 2), and adults with the feathers much worn. By the end of the first week in August adults and young were moulting about the head and the old birds had regained most of the rectrices and remiges, and by the first of September the adults were in good condition, with the exception of the crest, while the young still showed the first plumage about the head and breast. By October 1 all were in full plumage, though up to this time the crests were still imperfect. In the present series there is a great variation in the number and distinctness of the black bars on the rectrices, apparently irrespective of age or sex, though a large per cent of the adult males appear to have these bars heavier. In one specimen there are only six of these bars, all very indistinct and obsolete on the proximal half of the feathers while another shows eighteen narrow bars, the last three extending under the upper tail coverts.

The sixteenth of May a pair of these birds evidently had a nest on Look-out Mountain but we could not find it. A week later however the birds were still in flocks, and not until the first of June were all mated. The first young — noisy and not as wary as the adults — were seen July 18, and after this date they were common. About the middle of August they began moving down the cañons, and were occasionally seen below 7,000 feet while two months later — during the latter part of October, they were seen commonly at the mouths of the cañons, and one was noted in Denver the last of September. There were more of these birds in Turkey Creek Cañon than anywhere else in the entire region, and here we were rarely out of sight or hearing of them. In September and October many of them frequented thickets away from the pines where they were usually found.

34. **Aphelocoma woodhousei.** WOODHOUSE'S JAY.—Half a dozen of these birds were seen on Clear Creek April 3 and one taken. They were seen also in Magpie Gulch April 25, and a pair in Chimney Gulch May 16, but were not noted again.

35. **Nucifraga columbiana.** CLARKE'S NUTCRACKER.—May 2 we found a flock of a dozen of these birds at the head of Chimney Gulch and took three of them. They were rather wild and hard to approach but when one was taken the others stopped for an instant. The feathers are very long and lax making the birds appear larger in life than they do in the hand. Those taken are much darker colored than fall specimens in fresh plumage, and one had the feathers of the breast smeared with pitch.

36. **Cyanocephalus cyanocephalus.** PIÑON JAY.—This bird was heard a number of times in Chimney Gulch in the spring and on September 26 one flew over our heads across a cañon. None were taken.

37. **Molothrus ater ater.** COWBIRD.—Only one was seen in the vicinity of Golden, although it is undoubtedly of regular occurrence. An adult male was found about a bunch of horses on July 25, below the mouth of Coon Gulch but was not taken.

38. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACK-BIRD.—Seen a few times in April and May along Clear Creek. The first bird of the season was noted on Bear Creek April 14.

39. **Agelaius phoeniceus fortis.** THICK-BILLED REDWING.— Common along the creeks and in marshy growths along the edge of the foothills. The males wintered and were found in large flocks. In the spring they frequented thickets of plum-brush and growths of cat-tails as roosting places when not feeding, and when disturbed flew out with a loud roaring of wings. They were singing by the middle of April and the females arrived from the south about the end of the month, though the two sexes still flocked separately. By the middle of May they were paired and in some cases two broods were raised. Three were seen May 23 at 7,500 feet, the only time that we saw them "on top," and we saw several pairs south of Golden July 25, that evidently had young in the grass though we could not find them. By September 1 they were gathered in flocks, and the moult was nearly completed by the end of the first week in October. All the specimens taken are true *fortis* and this is the breeding form clear to the base of the foothills. Two adult males in rather worn breeding plumage had the middle wing coverts paler than in the spring birds but this was undoubtedly due to the wear on the feathers. Otherwise the series is very uniform both in coloration and measurements.

40. **Sturnella neglecta.** WESTERN MEADOWLARK.— Common along Clear and Bear Creeks and to the top of Lookout Mountain wherever there were open fields. They were noted along the creeks April 3, but were not seen at 7500 feet until April 18. They bred here and were common all summer and a few stragglers remained until the last of September. In October they were found in straggling flocks between the foothills and the Table Mountains south of Golden and were then in full plumage. They winter in some numbers along Clear Creek below Golden and up the Platte to Morrison.

41. **Icterus bullocki.** BULLOCK'S ORIOLE.— This species was tolerably common in the cottonwoods on Clear Creek and in the town of Golden. They arrived in the spring about May 10. None were seen in the foothills.

42. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.— Found along Clear Creek and in the town of Golden. The first week in May the males were seen strutting before the females with bills pointed up, moving the head rapidly up and down in a vertical direction, at the same time giving a thin sibilant "see see." In the fall, the birds were found along Clear Creek in small flocks, and were noted here until the last of October.

43. **Pinicola enucleator montana.** ROCKY MOUNTAIN PINE GROSBEEK.— An immature male taken in a thicket of quaking aspens on the top of Lookout Mountain November 7, 1909. No others were seen though we made a careful search for them.

44. **Carpodacus cassinii.** CASSIN'S PURPLE FINCH.— Half a dozen were seen on Bear Creek below Morrison April 14, and on April 25 we took an adult male in Tucker's Gulch north of Golden. They were not seen again.

45. **Carpodacus mexicanus frontalis.** HOUSE FINCH — Fairly

common in Golden and also seen along Clear Creek. April 11 a pair were evidently ready to build in an old boiler house north of the C. & S. tracks near Golden. They were seen in this vicinity all summer and in August we took one on South Table Mountain. In November they were gathered in flocks in the Clear Creek bottoms where several more were taken.

46. ***Loxia curvirostra bendirei***. BENDIRE'S CROSSBILL.—A good series of Crossbills collected on Lookout Mountain in April and May are all referable to this subspecies. The first ones were seen April 18, when we encountered a small flock and they were fairly common up to May 23. Usually they fed in the pine trees on the cones and were hard to locate when silent. Their bills however made a loud cracking noise when feeding, betraying their presence and the birds themselves were very tame. On one occasion we observed a flock of about 50 feeding on the ground around a spring but when flushed they went back into the pines and remained quiet, their throats being full of seeds. In none of those taken were the sexual organs developed and there were no indications of their having bred at any recent period, all the birds taken being adults. Some of the males taken were very brightly colored and all were in very good condition.

47. ***Acanthis linaria linaria***. REDPOLL.—Two of these birds seen on Clear Creek April 3, and one taken. During the latter part of March others were seen but they had all gone north by the end of the first week in April.

48. ***Astragalinus tristis***. GOLDFINCH.—May 6 there were large flocks of migrating Goldfinches in the cottonwoods along Clear Creek and they were seen occasionally until the first of June. They were not noted again until the last week in October and on November 6 a small flock was seen on Lookout Mountain at 7,500 feet. Probably both *tristis* and *pallidus* occur here but this cannot be stated positively on account of lack of material. An adult male taken May 31 at Castle Rock, Colo., is intermediate between the two, but apparently nearer *tristis*. An adult female from Willard, Colorado, taken October 22, is true *pallidus*, being larger, paler and grayer than eastern birds. These are the only Colorado specimens available at present.

49. ***Astragalinus psaltria psaltria***. ARKANSAS GOLDFINCH.—During the summer this species was fairly common in Golden and casual along Clear Creek. September 19 a small flock was seen at the mouth of Chimney Gulch and from then until October 10, they were fairly common up to 7,000 feet, usually being seen in flocks of from four to six, probably family parties.

50. ***Spinus pinus pinus***. PINE SISKIN.—The series of this bird in the present collection shows the usual variation of color, irrespective of age or sex. Some have a very distinct buffy tinge on the under parts and these have the dusky streaks on the ventral surface much narrower and paler in color. The first birds were noted on Lookout Mountain April 18 and the first week in May they were feeding like *Astragalinus tristis* in flocks in the tops of the cottonwoods along the creek bottoms. These flocks did not

break up until the first of June and the birds were nesting by the middle of the month. They bred apparently from the plains up into the mountain parks and were most common in the mountains. By July 18 young were seen out of the nest, and from then until October 10 they were common on Lookout Mountain. During the fall months they were quicker and more restless seldom remaining long in one locality. The adults were very anxious about their young and were continually making short circling flights out over us when we were near, calling excitedly and betraying themselves by their anxiety. Immature birds were still moulting the first week in October.

51. *Passer domesticus*. ENGLISH SPARROW.—Common in Golden and around some of the ranch houses.

52. *Poœcetes gramineus confinis*. WESTERN VESPER SPARROW.—Common on the plains and found in the highest altitude in the region in question wherever there were open fields. There is very little variation in a small series of these birds except in freshness of plumage, which is due entirely to the season. The first one was seen April 18, and by May 2 they were common. Two broods were raised, the first in May, the second in July. The males had a second song period about the middle of the latter month and on August first there were apparently many nests with young on South Table Mountain, as females were seen frequently with food in their bills. From then until the middle of September they were very retiring and the last ones, a small flock scattered over a knoll on North Table Mountain, were noted October 2 and one was taken.

53. *Passerculus sandwichensis alaudinus*. WESTERN SAVANNAH SPARROW.—Noted in September around the reservoir on top of Lookout Mountain.

54. *Ammodramus savannarum bimaculatus*. WESTERN GRASS-HOPPER SPARROW.—July 25 we heard the weak song of this bird near a little spring on the flat south of Golden and after a short search discovered the bird perched on a weed and secured it.

55. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—Fairly common in the open near Golden, but not found as frequently as farther east. None were noted here after the middle of June.

56. *Zonotrichia leucophrys leucophrys*. WHITE-CROWNED SPARROW.—An adult female taken September 19 is the only specimen of this variety taken. The relative abundance of this and the following subspecies can only be determined by more extended observations. *Z. l. leucophrys* should be the first one to occur in the fall and this is true in the present case while *Z. l. gambeli* was not found until September 26.

57. *Zonotrichia leucophrys gambeli*. GAMBEL'S SPARROW.—Common migrant. In the spring the first one was taken April 25, and they were found up to May 9, from the plains to the top of Lookout Mountain. In the fall the first one was noted September 26. They had reached the height of their abundance October 10, and the last one was seen November 7. They frequented the bushy thickets in the gulches and were especially

common along a dry gully south of Golden. Spring birds have the indistinct white throat patch more pronounced than fall birds and one immature male taken November 7 showed a few black feathers in the crown.

58. *Spizella monticola ochracea*. WESTERN TREE SPARROW.— The last bird was seen in the spring, April 3, and the subspecies did not appear again until October 17. The first were seen at the plains level and a week later they were common and were taken at the highest altitude on Lookout Mountain. Up to November 7 all taken were adults with the exception of a single immature male taken October 24. After that date the immature birds were the commoner of the two. In no way did these birds differ from the eastern variety in habits. With the heavy snows in November the greater number moved from the mountains to the lower level of the various creeks.

59. *Spizella passerina arizonæ*. WESTERN CHIPPING SPARROW.— Common during the spring and summer and very abundant from the last of August to the tenth of October. In a large series of this subspecies there is no approach to *S. p. passerina* of the Eastern United States. Adults only were taken up to August 22, when they were in worn plumage. On the 29th young birds in the first striped plumage were taken, and a week later some specimens had completed the moult into the winter dress. The striped birds were taken up to September 26, and others were variously marked at that time according to the stage of development of the moult. October specimens were in perfect condition. There is much variation in immature birds as to the amount of rufous concealed in the crown, and also in the distribution of the black occipital stripes. In some cases these are uniform over the entire top of the head, and in others they are restricted to the lateral line.

The first bird was taken April 25 near Golden and they were fairly common up to July 25, when they began to increase in numbers and probably were coming down out of the mountains. August 1 on South Table Mountain there were large flocks, composed largely of adults, feeding among the loose rocks near some water holes. At our approach they straggled off giving only a faint "tsip" as a call note. The adult birds were common to the first of September but by the 19th of the month only the immature specimens were found. They were common from Golden to the top of Lookout Mountain and it was a curious fact that those at the lower levels were all in worn plumage and moulting, while those higher up had attained the full winter dress. They were found in large flocks and were continually on the move. Stray birds kept dropping in every few minutes to good feeding grounds and when a large flock was started they went off through the bushes and over the hills at a rapid rate.

October 10 stragglers were common but the large flocks had disappeared and the last bird was seen October 17.

60. *Spizella breweri*. BREWER'S SPARROW.— August 1 we took four of these birds on South Table Mountain, three adults and one immature. The birds were very shy and retiring, probably due to the season and the

condition of their plumage. The only note given was a low "tsip." They undoubtedly occur regularly but this was the only time we observed them.

61. **Junco aikeni.** WHITE-WINGED JUNCO.—Common in the late fall but only seen once in the spring. Two specimens were taken April 11 at an altitude of 7500 feet and the bird was not found again until October 24. Several were taken on this date and on November 7 they were as common as any of the other Juncos. In actions they were similar to the other Juncos but in mixed flocks they could usually be distinguished by their large size. On one occasion we saw them "fly-catching" after insects, from a thicket of plum brush. Some of the immature females in the present series have merely a trace of the white wing bars, but can be readily distinguished from *hyemalis* by their large size.

62. **Junco hyemalis hyemalis.** SLATE-COLORED JUNCO.—Specimens were taken April 11 at Golden, and April 14 at Morrison, but we can say nothing more concerning the status of this bird. None were observed with certainty in the fall.

63. **Junco hyemalis connectens.** SHUFELDT'S JUNCO.—Winter resident and common migrant. From April 11 to 14 appeared to be the height of the spring migration, and most of the birds were found along the edge of the foothills. After the latter date they were not found again until October 24, while on November 7 they were common with the other Juncos in large mixed flocks and were working back into the foothills.

64. **Junco hyemalis montanus.** MONTANA JUNCO.—This should be a regular winter resident but in rather a large series of Juncos there are only two specimens. One taken April 25 which is hardly typical (being near true *hyemalis*) and one October 10.

65. **Junco hyemalis mearnsi.** PINK-SIDED JUNCO.—This was the common Junco of the region and was found in the spring up to May 2, much later than any other of the migrant varieties of the same genus. The first fall specimen was taken October 2, and by the tenth of the month they were common again. These birds had the habits common to the genus so that no mention need be made of them here. They were found from the plains to the highest points in the region. There are four specimens that appear to show hybridization with *J. aikeni*, as in all there are present quite well defined wing bars, though otherwise the birds are similar to true *mearnsi*. These are all immature males taken in October and November. One has been examined by Mr. H. C. Oberholser, who has confirmed the identification as *J. h. mearnsi* \times *J. aikeni*. It may be stated here that there are two specimens in the Colorado Museum of Natural History in Denver and one other in the collection of the State Normal School at Greeley, Colorado, which show the same characteristics.

66. **Junco phænotus caniceps.** GRAY-HEADED JUNCO.—Common summer resident down to 7500 feet. During the migration found down to the plains. The first one was taken April 14 below Morrison, and they were common up to the first of June when all were found in pairs at 7500 feet. They were ready to breed and frequented the thickets of

quaking aspens and low pines. The males perched quietly in the pines from 6 to 30 feet from the ground and gave their pleasant trilling songs every minute or two. This song seemed louder and clearer than that of *J. h. hyemalis*, but this may have been imagination on our part. One nest which was found May 30, 1913, contained 4 fresh eggs and was built in a depression in the ground under a thick net-work of low hanging branches of a young Douglas Fir on a sparsely wooded hillside (Plate XXXIII, fig. 1). The nest was of usual construction and thickly foliated branches bending down to the ground offered almost perfect concealment. The nest was discovered by the female flushing noisily at a distance of several feet. After June they disappeared, probably going to a higher altitude, and were not taken again until September 19. They were fairly common during the fall and became abundant with the other species of *Junco* the last of October. Some of the females in the series have the rusty patch on the back much paler than others. One immature female, taken November 7, has a rufous line on each side of the crown extending backward to above the auricular region, while another of the same sex taken October 2, shows faint rusty tips to the feathers on the occipital and nuchal regions.

67. *Melospiza melodia montana*. MOUNTAIN SONG SPARROW.—Common resident, more abundant during migrations. Found as usual in thickets and weed patches not far from water. All the specimens taken come from the plains level, but on October 24 we heard one near a spring on Lookout Mountain. November 14 the birds were common along Clear Creek, though there was six inches of snow and the bushes were veritable snow banks from the masses that had caught in the branches.

68. *Melospiza lincolni lincolni*. LINCOLN'S SPARROW.—First noted May 2; common until May 23. None appeared to breed here, and in the fall they were taken from September 26 to October 10. This bird was found in the brush covered gulches and although frequenting the same localities as the song sparrow, also occurred back in the foothills away from water.

69. *Pipilo maculatus montanus*. SPURRED TOWHEE.—Summer resident, very common. The first one was seen May 2, by the 16th they were common, and by the 23d they were preparing to breed. The first nest was found May 30 built under a bush at the edge of a bank. It contained four fresh eggs and several more were found from then until the middle of June (Plate XXXIII, fig. 2). The first young were taken July 18 and on this same date the males began to sing again, preparatory to raising a second brood. They were moulting all through September and the last one was taken October 17. These birds frequented the thickets and bushy draws from the plains to the top of Lookout Mountain, and were noisy and rather conspicuous. When pursued however they took good care to keep out of sight in the bushes. The song was simpler than that of *Pipilo e. erythrophthalmus* consisting usually of a simple trill, but there were many puzzling variations which led us at times into looking for some new bird. The ordinary call note was a harsh mewling "jo-ree" The call note of the



1. NEST AND EGGS OF GRAY-HEADED JUNCO. BUILT UNDER LOW SPREADING BRANCHES OF SMALL DOUGLAS FIR ON OPEN WOODED HILLSIDE.
2. NEST AND EGGS OF SPURRED TOWHEE. BUILT AGAINST BASE OF QUAKING ASPEN ON STEEP SLOPE OF RAVINE.

young birds was a thin "*tsect.*" In a series of forty of these birds there are apparently no true *arcticus*. Many of them have as much white on the outer tail feathers as the latter subspecies and some of these have the same measurements for the tail itself, but all have the coloration much deeper and the rufous of the flanks exactly as in *montanus*. A large number of breeding birds have the above characteristics, and so appear to be slightly intermediate, but are much nearer *montanus*, and cannot be mistaken when compared with Kansas specimens of *arcticus*.

70. **Oreospiza chlorura.** GREEN-TAILED TOWHEE.—Common summer resident, but not as abundant as the preceding species. The first ones were seen May 16, and during migration they were found as low as the mouth of Chimney Gulch. Later however they were not seen below 7500 feet, and June 6 they were nesting. Young just out of the nest were taken July 18, and July 25, the males were in full song again, so that probably a second brood was raised. The last bird of the year was seen October 2, and they were seen on the plains 20 miles from the foothills September 7. The males had a rather pleasing song and also a mewling call note, very similar to that of *Dumetella carolinensis*. The call of the young birds could not be distinguished from that of the young of *P. m. montanus*. The adults spent much time on the ground. On one occasion one ran across an open space and was shot by mistake for a chipmunk. An immature female in full fall plumage taken October 2 had the rufous of the crown obscured by grayish olive-green tips to the feathers.

71. **Zamelodia melanocephala.** BLACK-HEADED GROSBEEK.—Tolerably common along Clear and Bear Creeks and seen occasionally in the town of Golden where they were noted May 20 and June 6. We have no fall records for this species.

72. **Passerina cyanea.** INDIGO BUNTING.—An adult male was taken on Clear Creek below Golden on August 1, 1909. Attention was attracted to the bird by its song and it was followed and secured. Another one was heard in the same locality later on but could not be located. The latest exact date given by Cooke in his "Birds of Colorado" is June 6, so that our bird is apparently the only mid-summer record for the state.

73. **Passerina amoena.** LAZULI BUNTING.—Fairly common summer resident in certain localities. They were not noted until the first of July here but probably arrived the last of May. They were found in the dry brush covered gulches opening into the foothills and like *P. cyanea* heat appeared to make no difference to them. The males sang from the tops of dead trees in the blazing sun and when approached dropped down into the dense thickets of plum-brush, where it was impossible to find them. Usually they took good care to keep out of gun range and flew back and forth across the draws ahead of us. The song was somewhat on the order of that of *Dendroica aestiva* and both sexes had a sharp chipping call note. Young birds out of the nest were found August 8, and by September 1 the birds had disappeared.

74. **Calamospiza melanocorys.** LARK BUNTING.—This bird was

not observed here until July 25, when about a dozen males were found at the foot of the eastern slope of Lookout Mountain, below Dead Man's Gulch. They were apparently located here as they kept in the same locality, and as only one female was seen we took them to be incubating. On the plains country to the east this species was common from May 12 on and was breeding June 13, but the Golden birds appeared to have arrived later. On August 1 we found loose flocks feeding over the top of South Table Mountain which had evidently come up from the warmer levels below. These were moulting rather badly and were very wild. The birds disappeared entirely by the last of August though they lingered a little later in the plains country.

75. *Piranga ludoviciana*. WESTERN TANAGER.—A male seen August 8 among the pines on Lookout Mountain was the first one noted here. On October 2 we took two among the cottonwoods on Clear Creek and saw several others. They were in good plumage and were exceedingly fat. This species should be of regular occurrence during migrations.

76. *Petrochelidon lunifrons lunifrons*. CLIFF SWALLOW.—This species arrived May 12 and was of transient occurrence during the migration. A few pairs nested under the eaves of a house near the School of Mines in Golden and were seen flying over the surrounding country until September 1.

77. *Hirundo erythrogastra*. BARN SWALLOW.—This species first appeared May 16 and was fairly common in the open region around Golden until September 1. In August they were in small flocks and the old birds were feeding their young of the second brood. The last seen were noted on Clear Creek October 2.

78. *Tachycineta thalassina lepida*. NORTHERN VIOLET-GREEN SWALLOW.—First seen May 16 and fairly common then at the base of the foothills. During the first week of June they were seen at 7500 feet and after this were not found again until August 8. Then one or two family parties were found on the top of Lookout Mountain and the adults were feeding the young. Not seen after September 1.

79. *Bombycilla garrula*. BOHEMIAN WAXWING.—Found in flocks on Clear Creek during the middle of March and a few noted April 3, but none taken.

80. *Lanius borealis*. NORTHERN SHRIKE.—First seen October 24, and fairly common after that along the creeks and bushy thickets. None were seen during the spring.

81. *Vireosylva gilva swainsoni*. WESTERN WARBLING VIREO.—One taken May 23 in Chimney Gulch and one or two seen occasionally during the summer along Clear Creek. Last found September 9, during the fall migration.

82. *Vermivora virginiae*. VIRGINIA'S WARBLER.—Common migrant and summer resident from the beginning of the foothills up to nearly seven thousand feet. Most abundant at 6000 feet. These birds were first seen May 16 when they were common. The first of June they were

nesting and by July 18 had young out of the nest. They disappeared by the end of the first week in September. The Virginia's Warbler resembles *Vermivora r. rubricapilla* in its habits, except that it frequents the bushes instead of the high trees, and has a song almost exactly like that bird. In the late summer they were found in family parties and could be located usually by the sharp chipping notes of the adults. The brushy draws and thickets of Chimney Gulch were a favorite resort with them but they were more often heard than seen.

83. *Vermivora celata celata*. ORANGE-CROWNED WARBLER.— Fairly common along Clear Creek from May 6 to May 16. Not noted during the fall.

84. *Vermivora celata lutescens*. LUTESCENT WARBLER.— Found in the spring from May 6 to May 16, and taken once on Lookout Mountain Sept. 19. The relative abundance of *celata* and *lutescens* cannot be gauged from the meager series in the present collection. We have two of the former and four of the latter, and of these all but one *lutescens* were taken in the spring.

85. *Dendroica aestiva aestiva*. YELLOW WARBLER.— Arrived by the end of the first week in May and was noted along Clear Creek and in the town of Golden all summer. During the spring migration a few were seen in the small draws near the mouth of Chimney Gulch. Two adult males taken agree closely with Kansas specimens.

86. *Dendroica coronata*. MYRTLE WARBLER.— Found sparingly along Clear Creek below Golden, from the first to the sixteenth of May. None were seen in the foothills nor was the species noted during the fall.

87. *Dendroica auduboni auduboni*. AUDUBON'S WARBLER.— Arrived about April 25 and was common until May 20 along Clear Creek. Only a few were seen in the foothills, though a female was taken on Lookout Mountain as late as June 6. It was probably a stray here however as it is doubtful if the bird breeds this low down. During the fall it occurred sparingly in the foothills from September 5 to October 10 but was not observed in abundance at any time.

88. *Oporornis tolmiei*. MACGILLIVRAY'S WARBLER.— First seen on the edge of the foothills May 16 and was common from the mouth of Chimney Gulch up to seven thousand feet by May 23. They were very restless and active and had a sharp chipping note besides the song. They were fairly common all summer in this locality. The last one, a female, was taken September 26.

89. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.— Occasional along Clear Creek during the summer, but more common further east in the plains country, where they arrived May 5.

90. *Icteria virens longicauda*. LONG-TAILED CHAT.— Several noted in a draw on South Table Mountain facing Clear Creek on August 1 and one taken. They were still in full song and as usual were very secretive. We heard them several times during August along Clear Creek.

91. *Anthus rubescens*. AMERICAN PIPIT.— Tolerably common mi-